

What is claimed is:

1. A method for producing cisplatin micelles, comprising:
- a) combining cisplatin and a phosphatidyl glycerol lipid derivative in a range of 1:1 to 1:2 to form a cisplatin mixture; and
- b) combining the mixture of step a) with an effective amount of at least a 30% ethanol solution to form cisplatin micelles.

2. A method for producing cisplatin micelles, comprising:
- a) combining cisplatin with an effective amount of at least a 30% ethanol solution to form a cisplatin/ethanol solution; and
- b) combining the solution with a phosphatidyl glycerol lipid derivative in a range of 1:1 to 1:2 to form cisplatin micelles.

3. The method of claim 1 or 2, wherein the phosphatidyl glycerol lipid derivative is selected from the group consisting of dipalmitoyl phosphatidyl glycerol (DPPG), dimyristoyl phosphatidyl glycerol (DMPG), dicaproyl phosphatidyl glycerol (DCPG), distearoyl phosphatidyl glycerol (DSPG) and dioleoyl phosphatidyl glycerol (DOPG).

4. The method of claim 1 or 2, wherein the molar ratio is 1:1.

5. The method of claim 1 or 2, further comprising combining an effective amount of a free fusogenic peptide, a fusogenic peptide-lipid conjugate or a fusogenic peptide-PEG-HSPC conjugate to the mixture of step a) where the fusogenic peptide is derivatized with a stretch of 1-6 negatively-charged amino acids at the N or C- terminus and thus, able to bind electrostatically to aquaplatin.

6. The method of claim 5, wherein the free fusogenic peptide or fusogenic peptide lipid conjugate comprises DOPE or DOPE/cationic lipid.

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7. The cisplatin micelle obtained by the method of claims 1 or 2.

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8. The cisplatin micelle obtained by the method of claim 5.

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9. A method for encapsulating cisplatin micelles, comprising mixing an effective amount of a vesicle-forming lipid with the cisplatin micelles of claim 1 or 2.

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10. The encapsulated cisplatin obtainable by the method of claim 9.

11. The method of claim 10, wherein the lipid is selected from premade neutral liposomes, composed of cholesterol 10-60%, hydrogenated soy phosphatidylcholine (HSPC) 40-90% and polyethyleucglycol (PEG)-HSPC 1-7% or lipids in solution, lipids in powder and PEG-DSPE.

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12. The method of claim 10, wherein the lipid comprises 10-60% cholesterol.

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13. A method for obtaining a cisplatin/lipid complex capable of evading macrophages and cells of the immune system when administered to a subject, the method comprising mixing an effective amount of the cisplatin micelles of claim 9 with an effective amount of PEG-DSPE, PEG-DSPC or hyaluronic acid - DSPE.

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14. The method of claim 1 or 2, further comprising removal of the ethanol from the cisplatin micelles.

5 *Sub C4* 15. The method of claim 14, wherein removal of the ethanol is by dialysis of the micelles through permeable membranes to remove the ethanol.

16. Encapsulated cisplatin obtainable by the method of claim 11.

10 *SUB A4* 17. Encapsulated cisplatin obtainable by the method of claim 13.

18. A method for delivering cisplatin to a cell comprising contacting the cell with the encapsulated cisplatin of claim 15.

15 *Sub C4* 19. A method for delivering cisplatin to a cell comprising contacting the cell with the encapsulated cisplatin of claim 17.

20 20. A method for inhibiting the growth of a tumor in a subject, comprising administering to the subject an effective amount of the encapsulated cisplatin of claim 16.

21. A method for inhibiting the growth of a tumor in a subject, comprising administering to the subject an effective amount of the encapsulated cisplatin of claim 17.

25 *SUB A5* 22. A method for targeting solid tumors and metastases in a subject comprising intravenous administration of an effective amount of the encapsulated cisplatin of claims 16 or 17.

Sub
A5 contd

23. A method for penetrating the cell membrane of a tumor in a subject comprising administering an effective amount of the cisplatin micelle obtainable by the method of claim 7.

5 24. A method for inhibiting tumor growth in a subject comprising administering to the subject an effective amount of the encapsulated cisplatin of claim 10 and a gene selected from the group consisting of p53, pax5 and HSV-tk genes.

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10 ~~25~~ ~~24a.~~ The method of claim 24, wherein the method further comprises administering an effective amount of encapsulated ganciclovir.

15 ~~26~~ ~~25.~~ The method of claim 24 wherein the genes to be combined with cisplatin are any of, or combinations of encapsulated IL-2, IL-4, IL-7, IL-12, GM-CSF, IFN-gamma, TNF-alpha, RB, BRCA1, E1A, cytosine deaminase in combination with encapsulated 5-fluorocytosine, bcl-2, MDR-1, p21, p16, bax, bcl-xs, E2F, IGF1, VEGF, TGF-beta and the like.

20 ~~27~~ ~~26.~~ A composition comprising the encapsulated cisplatin ^{micelle 11} of claim 10 and encapsulated oligonucleotides, ribozymes, triplex, PNA.

~~28~~ ~~27.~~ A composition comprising the encapsulated cisplatin of claim 10 and a drug selected from the group consisting of doxorubicin, fluorodeoxyuridine, bleomycin, adriamycin, vinblastin, prednisone, vincristine, taxol.

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